

AMENDMENTS TO THE DRAWINGS

Replacement Sheets 1-7, are attached hereto.

The attached replacement sheet of drawings includes changes to Figures 7-12. In each figure, the single digit reference characters are replaced by unique triple digit reference characters. For example, In Figure 7, the character “1” is replaced by “101”, and in Figure 8, the character “1” is replaced by “201”.

Also, a Replacement Sheet for Figure 3 with a new drawing in which all the parts are visible is attached hereto.

Attachments: Replacement Sheets 1-7.

REMARKS

Upon entry of the present amendment claims 1 and 23-44 are pending in the application. Claims 1, 24, 27-29, 34, 42, and 44 have been amended in accordance with the requirements of U.S. patent practice. Claim 26 has been canceled. Antecedent basis for the amendments is set forth in Sections 4-6 below. Applicants respectfully request entry of this amendment.

Amendments to, cancellation of, and additions to, the claims, as set forth above, are made in order to streamline prosecution in this case by limiting examination and argument to certain claimed embodiments that presently are considered to be of immediate commercial significance. Amendment or cancellation of the claims is not in any manner intended to, and should not be construed to, waive Applicants' right in the future to seek such unamended or cancelled subject matter, or similar matter (whether in equivalent, broader, or narrower form) in the present application, and any continuation, divisional, continuation-in-part, RCE, or any other application claiming priority to or through the present application, nor in any manner to indicate an intention, expressed or implied, to surrender any equivalent to the claims as pending after such amendments or cancellations.

1. Allowable Subject Matter.

Applicants thank the PTO for the indication of the allowability of claims 41-44. Applicants have addressed the objections and 35 USC § 112, second paragraph rejections of these claims in Sections 4 and 5 below. For the reasons set forth in Sections 4-7 below, it is submitted that pending claims 1 and 23-40 are independently allowable on other grounds.

2. Drawings Objections.

The PTO states, “[t]he drawings are objected to because fig. 3 is too dark, making it hard to see the parts of the device.” A Replacement Sheet with a new drawing in which all the parts are visible is attached hereto.

The drawings are also objected to for failing to comply with 37 CFR 1.84(p)(4). Replacement sheets in compliance with 37 CFR 1.84(p)(4) and 37 CFR 1.121(d) for Figures 7-13 are also attached hereto. In particular, the reference characters in these drawings have been

changed such that the same reference character is not used to designate different parts in the same or different drawings.

3. Specification Objections.

The disclosure is objected to because a brief description of the drawings is missing. A brief description of the drawings is given in the “Amendments to the Specification” section on pages 3-4 of this paper.

The specification is objected to as failing to provide proper antecedent basis for the claimed subject matter. In particular, claim 29 is said to recite a three-dimensional flow cell (claim 29) and another three-dimensional flow cell (claim 1, from which claim 29 depends). Claim 29 has been amended to be an independent claim. As amended, claim 29 now recites one three-dimensional flow cell.

4. Claim Objections.

Claim 29 is objected to because the preamble is inconsistent with the preamble of the claims with which it depends. This objection is moot because claim 29 has been amended to be an independent claim.

Claims 29 and 42 are objected to because of an inconsistency in quantity between “detectors (Ca)” and “the detector”. The claims as herein amended now consistently recite “one or more detectors (Ca)”.

The typographical errors in claim 34 have been corrected.

The use of the terms “registering” and “registered” in claims 41 and 44 is in the sense of “recording” or “recorded” as the route verb “register” is defined (Sense 1c) by Merriam-Webster’s Online Dictionary. Applicants respectfully submit that no amendment is necessary.

The errors of claim 44 have been corrected.

5. Rejection of claims 1, 23-40 and 42 under 35 USC § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In particular, claim 1 is said to omit “essential structural cooperative relationships of elements, such omission amounting to a gap between the necessary structural connections”

(Office Action of 8/7/08, p. 4). Claim 1 has been amended to include expansion zone (Z2), in contact with feed zone (Z1) and measurement zone (Z3), in contact with expansion zone (Z2). Support for this amendment is at least on page 5, line 33 to page 7, line 11, and in Figures 1 and 2. Reference characters Z1 to Z4 are used in the claim parenthetically to relate the zones to the description in the specification and to Figures 1 and 2. With this amendment, Applicants respectfully submit that all structural cooperative relationships and connections are specified in the claim.

Claim 24 stands rejected because it is a method claim and allegedly no method steps are claimed at all, and it allegedly does not further limit claim 1, from which it depends. Claim 24 has been amended so that the method comprises the step of “passing the liquid sample through a three-dimensional flow cell”. Moreover, the dependency on claim 1 has been deleted.

Claim 26 has been canceled, rendering the objection to claim 26 moot.

Claim 28 is alleged to omit structural cooperative relationships, in particular, how the reflectance sensor is connected to the three-dimensional flow cell. This objection is now moot because claim 28 has been amended to recite that the photometric measuring device *is* a reflectance sensor, not a *separate* structural element.

Claim 29 is alleged to omit structural cooperative relationships, in particular how the optical unit, sample analysis unit, and systems control unit are connected to the three-dimensional flow cell of claim 1. This objection is now moot, because claim 29 has been amended so that it does not depend from claim 1.

Claims 29 and 42 are rejected because it is allegedly in “narrative” form, and the term “being led” appears to be a literal translation. The Applicants are unaware of any law under 35 USC or any rule under 37 CFR that prohibits literal translations of claims originally drafted in foreign languages. Nonetheless, for clarity, claims 29 and 42 are amended so that the limitations cited by the PTO are deleted. Replacing the deleted limitation are the limitations that the sample analysis cell comprises the “three-dimensional flow cell of claim 1”, that “the liquid sample measuring zone (Z3) is defined by a gap between the measuring window (Ba) and the three-dimensional flow cell”, and “the optical unit is arranged on the side of the measuring window opposite the measuring zone (Z3)”.

The meaning of the phrase “behind the lamp” is clearly defined on page 15, lines 20-22 of the application. Nonetheless, for clarity, claim 34 has been amended to recite that (ac) the compensation filter is “arranged between the lamp and the measuring window (Ba)”; that (ad) the IR blocking filter, condenser, and diffuser are “arranged between the lamp and compensation filter”; that (ae) the optical waveguides are “inside of protective tubes”; and (af) the reference waveguide has “a precise spacing element with incorporated diffuser arranged between the light source (Aa) and the detector (Ca) to maintain the full aperture angle.” Support for these amendments is found at least on page 13, lines 25-32, page 15, line 19 to page 16, line 2, page 16, lines 16-23, page 17, line 32 to page 18, line 6, and page 21, lines 1-3.

6. Rejection of claims 1 and 23-27 under 35 U.S.C. § 102b as being anticipated by Steenhoek et al., U.S. Publication No. 2002/0131043 (hereafter “Steenhoek”).

With respect to claims 1 and 24, the PTO alleges:

a fluid element of the sample with the dimensions a, b, c (46) being transformed in an expansion zone into a fluid element with the dimensions a x n, b/(n x m), c x m, a being the width, b the height and c the length of the fluid element and n and m being constants which depend on the geometry of the flow cell and which signify positive numbers greater than or equal to 1 (it is noted that this flow cell satisfies the condition when both n and m = 1; in this case the expansion zone remains the same size as the rest of the fluid element).

(Office Action of 8/7/08, p. 6, first par.)

Applicants appreciate the detailed basis of rejection, but respectfully disagree, at least to the extent that the rejection applies to claims 1 and 24. These claims have been amended to recite that n is 1.5 to 7. Support is found at least on p. 8, ll. 31-37. With this limitation, the claims no longer encompass a flow cell in which both n and m are equal to one, and are therefore not anticipated by Steenhoek.

With respect to claims 23 and 25, the PTO alleges “n=m (as discussed above, the flwo cell satisfies the equation when n=m=1).” As set forth above, the claims now have the limitation that n is 1.5 to 7, not 1.

PTO’s rejection of claim 26 has been rendered moot by cancellation of the claim.

With respect to claim 27, the PTO contends,

. . . Steenhoek discloses a photometric measuring device for measuring the level of attenuation in the propagation of light in a liquid sample containing non-isometric particles (fig. 1), comprising a three-dimensional flow cell for aligning the particles in the liquid sample in two axes as claimed in claim 1 (40).

(Office Action of 8/7/08, p. 6, first par.)

Applicants respectfully traverse. Steenhoek is silent on non-isometric particles. Moreover, Steenhoek does not teach or suggest a flow cell in which the fluid is expanded according to the geometrical limitations of claim 1, i.e. "into a fluid element with the dimensions $a \times n, b/(n \times m), c \times m$, a being the width, b the height and c the length of the fluid element and n and m being constants which depend on the geometry of the flow cell and wherein n is 1.5 to 7."

For all of these reasons, Applicants submit that claims 1 and 23-27 are not anticipated by Steenhoek. Reconsideration and removal of this rejection is respectfully requested.

7. **Rejection of claims 28-40 under 35 U.S.C. § 103(a) as being unpatentable over Steenhoek et al. U.S Publication No. 2002/0131043 (hereafter "Steenhoek", in view of Martino et al. U.S. Publication No. 2002/0149773 (hereafter "Martin").**

Applicants appreciate the detailed delineation of the rejections, but must respectfully disagree. All of the rejected claims encompass the three-dimensional flow cell recited in claim 1, which has the limitation that "a fluid element of the sample with the dimensions a, b, c is transformed in the expansion zone (Z2) into a fluid element with the dimensions $a \times n, b/(n \times m), c \times m$, a being the width, b the height and c the length of the fluid element and n and m being constants which depend on the geometry of the flow cell and wherein n is 1.5 to 7." Neither Steenhoek nor Martin, alone or in combination, teach or suggest a flow cell in which the fluid is expanded according to these geometrical limitations. Applicants respectfully submit that a flow cell in which the fluid is expanded according to these geometrical limitations is not obvious from the disclosure of Steenhoek or Martin, either.

The dimensional limitations of the claims require that as the a and c dimensions are increased by a factor of n (1.5 to 7) and m , respectively, dimension c is decreased by a factor of $(n \times m)$, so that a given volume element of fluid before expansion has the same volume after expansion. Inspection of Figure 3A of Steenhoek and the accompanying description of the Figure

in par. 34-35 shows that there is no teaching or suggestion therein that the height of the fluid analysis chamber **46** is reduced proportionally to any increase in the length and width of a volume element in flow conduit **62**. Moreover, there is no teaching or suggestion that the factor is 1.5 to 7.

Since all of the rejected claims encompass the expansion factor limitation of claim 1, Applicants respectfully submit that the claims are not obvious over Steenhoek in view of Martin. Reconsideration and removal of the obviousness rejection of claims 28-40 is requested in view of the foregoing amendments and remarks.

CONCLUSION

Applicant(s) respectfully submit that the Application and pending claims are patentable in view of the foregoing amendments and/or remarks. A Notice of Allowance is respectfully requested. As always, the Examiner is encouraged to contact the Undersigned by telephone if direct conversation would be helpful.

Respectfully Submitted,

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